

Iron and Steel Forging: 2002

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2002 Economic Census

Manufacturing

Industry Series



U S C E N S U S B U R E A U

Helping You Make Informed Decisions

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU



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-- Not applicable for this report.

Table 1. Historical Statistics for the Industry: 2002 and Earlier Years

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year ¹	Com- panies ²	All estab- lish- ments ³	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
			Number ⁴	Payroll (\$1,000)	Number ⁴	Hours (1,000)	Wages (\$1,000)				
332111, Iron and steel forging 2002..	341	375	21 618	872 496	15 967	32 206	576 175	1 905 188	2 249 499	4 186 690	146 085
2001..	N	N	24 391	967 158	17 866	36 845	628 338	1 966 392	2 453 313	4 407 850	163 781
2000..	N	N	26 046	1 031 933	19 297	40 758	694 373	2 344 414	2 504 093	4 834 975	166 995
1999..	N	N	25 929	1 017 222	19 407	40 780	683 860	2 285 771	2 419 465	4 743 533	176 354
1998..	N	N	28 404	1 133 210	21 224	44 929	748 963	2 656 789	2 708 535	5 378 169	195 279
1997..	390	417	26 156	1 020 473	19 766	42 001	687 494	2 423 265	2 482 765	4 869 727	209 964

¹Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during the year.

⁴Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 2. Industry Statistics for Selected States: 2002

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments ²		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
332111, Iron and steel forging												
United States	1	375	181	21 618	872 496	15 967	32 206	576 175	1 905 188	2 249 499	4 186 690	'146 085
California	4	27	11	1 008	40 322	737	1 569	27 035	63 400	119 630	191 349	'3 770
Colorado	5	8	4	261	8 634	215	431	6 249	28 085	22 386	51 210	'479
Illinois	1	35	24	2 325	88 474	1 749	3 497	56 784	192 542	287 639	483 111	'12 178
Kentucky	—	8	4	564	22 931	395	660	14 088	80 120	71 199	145 181	'9 183
Massachusetts	—	6	3	688	31 889	507	1 018	21 314	98 682	83 531	199 131	'5 368
Michigan	—	34	22	1 898	82 576	1 409	2 899	55 964	229 665	263 070	488 614	'5 774
Missouri	2	9	3	237	7 625	178	367	5 339	6 295	13 086	22 715	'289
New York	8	17	5	516	16 958	426	657	11 936	38 027	44 830	82 972	'1 444
North Carolina	—	6	5	694	28 187	498	1 039	17 631	61 901	82 844	144 024	'6 776
Ohio	1	39	31	3 480	145 604	2 501	5 134	97 555	311 618	343 330	656 410	'36 236
Pennsylvania	1	28	16	2 235	88 643	1 580	3 039	54 597	155 098	222 206	384 912	'5 363
South Carolina	3	5	3	207	8 445	161	357	5 818	15 598	28 138	42 453	'509
Tennessee	—	10	4	986	33 856	727	1 505	23 055	76 574	54 233	131 622	'16 616
Texas	2	29	14	1 889	77 189	1 454	3 149	55 501	175 836	177 492	353 602	'10 430
Wisconsin	—	11	7	1 550	68 284	1 143	2 161	47 310	130 485	142 260	274 480	'12 379

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

Table 3. Detailed Statistics by Industry: 2002

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
332111, Iron and steel forging	
Companies ¹	number.. 341
All establishments ²	number.. 375
Establishments with 1 to 19 employees	number.. 194
Establishments with 20 to 99 employees	number.. 110
Establishments with 100 employees or more	number.. 71
All employees ³	number.. 21 618
Total compensation	\$1,000.. 1 138 779
Annual payroll	\$1,000.. 872 496
Total fringe benefits	\$1,000.. 266 283
Production workers, average for year	number.. 15 967
Production workers on March 12	number.. 16 192
Production workers on May 12	number.. 16 152
Production workers on August 12	number.. 15 930
Production workers on November 12	number.. 15 552
Production worker hours	1,000.. 32 206
Production worker wages	\$1,000.. 576 175
Total cost of materials	\$1,000.. 2 249 499
Materials, parts, containers, packaging, etc., used	\$1,000.. 1 833 705
Resales	\$1,000.. 42 632
Purchased fuels	\$1,000.. 72 981
Purchased electricity	\$1,000.. 97 511
Contract work	\$1,000.. 202 670
Quantity of electricity purchased for heat and power	1,000 kWh.. 1 632 727
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -
Total value of shipments	\$1,000.. 4 186 690
Primary products value of shipments	\$1,000.. 3 680 883
Secondary products value of shipments	\$1,000.. 417 970
Total miscellaneous receipts	\$1,000.. 87 837
Value of resales	\$1,000.. 51 561
Contract receipts	\$1,000.. 13 642
Other miscellaneous receipts	\$1,000.. 22 634
Primary products specialization ratio	percent.. 90
Value of primary products shipments made in all industries	\$1,000.. 3 863 251
Value of primary products shipments made in this industry	\$1,000.. 3 680 883
Value of primary products shipments made in other industries	\$1,000.. 182 368
Coverage ratio	percent.. 95
Value added	\$1,000.. 1 905 188
Total inventories, beginning of year	\$1,000.. 590 070
Finished goods inventories	\$1,000.. 129 557
Work-in-process inventories	\$1,000.. 263 538
Materials and supplies inventories	\$1,000.. 196 975
Total inventories, end of year	\$1,000.. 552 307
Finished goods inventories	\$1,000.. 112 209
Work-in-process inventories	\$1,000.. 248 883
Materials and supplies inventories	\$1,000.. 191 215
Gross value of depreciable assets (acquisition costs) at beginning of year	\$1,000.. '2 682 278
Total capital expenditures (new and used)	\$1,000.. '146 085
Buildings and other structures (new and used)	\$1,000.. '15 817
Machinery and equipment (new and used)	\$1,000.. '130 268
Automobiles, trucks, etc., for highway use	\$1,000.. '2 092
Computers and peripheral data processing equipment	\$1,000.. '5 643
All other expenditures for machinery and equipment	\$1,000.. '122 533
Total retirements	\$1,000.. '105 127
Gross value of depreciable assets at end of year	\$1,000.. '2 723 236
Depreciation charges during year	\$1,000.. '184 089
Total rental payments	\$1,000.. 43 453
Buildings and other structures	\$1,000.. 17 162
Machinery and equipment	\$1,000.. 26 291
Total other expenses ⁴	\$1,000.. 302 559
Response coverage ratio ⁵	percent.. 84
Repair and maintenance services of buildings and/or machinery ⁴	\$1,000.. 59 122
Communications services ⁴	\$1,000.. 6 278
Legal services ⁴	\$1,000.. 4 405
Accounting, auditing, and bookkeeping services ⁴	\$1,000.. 4 389
Advertising and promotional services ⁴	\$1,000.. 1 776
Expensed computer hardware and supplies and purchased computer services ⁴	\$1,000.. 5 933
Refuse removal (including hazardous waste) services ⁴	\$1,000.. 6 507
Management consulting and administrative services ⁴	\$1,000.. 7 399
Taxes and license fees ⁴	\$1,000.. 12 448
All other expenses ⁴	\$1,000.. 194 303

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Based on Annual Survey of Manufactures (ASM) sample data.

⁵A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 4. Industry Statistics by Employment Size: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E ¹	All establishments ²	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
332111, Iron and steel forging											
All establishments	1	375	21 618	872 496	15 967	32 206	576 175	1 905 188	2 249 499	4 186 690	'146 085
Establishments with—											
1 to 4 employees	9	116	241	9 298	179	339	6 286	18 173	20 753	38 883	'684
5 to 9 employees	8	42	293	12 788	217	442	8 502	24 808	30 056	55 075	'1 417
10 to 19 employees	7	36	488	20 466	371	743	14 337	38 715	45 966	85 398	'1 287
20 to 49 employees	2	58	1 903	73 445	1 364	2 865	45 818	164 611	178 973	345 277	'9 506
50 to 99 employees	2	52	3 659	149 506	2 728	5 728	103 112	316 762	370 706	690 489	'16 553
100 to 249 employees	1	52	8 146	322 948	6 170	12 584	212 696	654 535	783 312	1 441 922	'60 868
250 to 499 employees	—	16	4 975	198 094	3 551	7 015	133 134	471 998	512 306	987 897	36 872
500 to 999 employees	—	3	1 913	85 951	1 387	2 490	52 290	215 586	307 427	541 749	18 898
1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—
2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—
Administrative records ⁴	9	163	921	38 939	696	1 391	27 141	74 877	90 881	165 753	'3 003

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 5. Industry Statistics by Primary Product Class Specialization: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments ¹	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ²	Payroll (\$1,000)	Number ²	Hours (1,000)	Wages (\$1,000)				
332111	Iron and steel forging	375	21 618	872 496	15 967	32 206	576 175	1 905 188	2 249 499	4 186 690	'146 085
3321111	Hot impression die impact, press, and upset steel forgings	129	13 844	566 288	10 222	20 428	373 511	1 275 778	1 511 734	2 808 012	'104 251
3321113	Cold impression die impact, press, and upset steel forgings	18	2 229	87 851	1 678	3 558	56 462	194 959	206 949	400 715	'26 723
3321115	Seamless rolled ring forgings, ferrous, made from purchased iron and steel	13	1 547	62 313	1 150	2 458	41 757	106 300	185 425	300 314	'4 728
3321117	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel	20	2 549	95 301	1 843	3 641	63 323	212 180	205 464	421 904	'6 086

¹Includes establishments with payroll at any time during the year.

²Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6a. **Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
332111	Iron and steel forging	2002.. N 1997.. N	X X	X X	3 863 251 4 535 526
3321111	Hot impression die impact, press, and upset steel forgings	2002.. N 1997.. N	X X	X X	2 448 219 3 152 952
33211111	Hot impression die impact, press, and upset carbon steel forgings	2002.. N 1997.. N	X X	X X	1 202 202 1 356 439
3321111101	Hot impression die impact, press, and upset carbon steel forgings	2002.. N 1997.. N	X X	X X	1 202 202 1 356 439
332111112	Hot impression die impact, press, and upset alloy steel forgings, excluding stainless and hi-temp	2002.. N 1997.. N	X X	X X	906 857 1 068 337
3321111206	Hot impression die impact, press, and upset alloy steel forgings, excluding stainless and hi-temp	2002.. N 1997.. N	X X	X X	906 857 1 068 337
33211113	Hot impression die impact, press, and upset stainless steel forgings	2002.. N 1997.. N	X X	X X	108 203 111 713
3321111311	Hot impression die impact, press, and upset stainless steel forgings	2002.. N 1997.. N	X X	X X	108 203 111 713
33211114	Hot impression die impact, press, and upset hi-temp (iron, nickel, or cobalt-base alloy) steel forgings	2002.. N 1997.. N	X X	X X	227 395 389 369
3321111416	Hot impression die impact, press, and upset hi-temp (iron, nickel, or cobalt-base alloy) steel forgings	2002.. N 1997.. N	X X	X X	227 395 389 369
3321111Y	Hot impression die impact, press, and upset steel forgings, nsk	2002.. N 1997.. N	X X	X X	3 562 227 094
3321111YVV	Hot impression die impact, press, and upset steel forgings, nsk	2002.. N 1997.. N	X X	X X	3 562 227 094
3321113	Cold impression die impact, press, and upset steel forgings	2002.. N 1997.. N	X X	X X	422 452 354 695
33211131	Cold impression die impact, press, and upset steel forgings	2002.. N 1997.. N	X X	X X	417 515 350 008
3321113101	Cold impression die impact, press, and upset carbon steel forgings	2002.. N 1997.. N	X X	X X	310 935 234 588
3321113116	Cold impression die impact, press, and upset stainless steel and hi-temp (iron, nickel, or cobalt-base alloy) forgings	2002.. N 1997.. N	X X	X X	106 580 N
3321113Y	Cold impression die impact, press, and upset steel forgings, nsk	2002.. N 1997.. N	X X	X X	4 937 4 687
3321113YVV	Cold impression die impact, press, and upset steel forgings, nsk	2002.. N 1997.. N	X X	X X	4 937 4 687
3321115	Seamless rolled ring forgings, ferrous, made from purchased iron and steel	2002.. N 1997.. N	X X	X X	297 526 342 342
33211151	Seamless rolled ring forgings, ferrous, made from purchased iron and steel	2002.. N 1997.. N	X X	X X	297 526 342 342
3321115101	Seamless carbon steel and alloy steel rolled ring forgings (excluding stainless and hi-temperature), made from purchased iron and steel ¹	2002.. N 1997.. N	X X	X X	180 233 200 433
3321115106	Seamless stainless steel and hi-temperature (iron, nickel, or cobalt-base alloy) rolled ring forgings, made from purchased iron and steel ²	2002.. N 1997.. N	X X	X X	117 293 141 909
3321115Y	Seamless rolled ring forgings, ferrous, made from purchased iron and steel, nsk	2002.. N 1997.. N	X X	X X	— —
3321115YVV	Seamless rolled ring forgings, ferrous, made from purchased iron and steel, nsk	2002.. N 1997.. N	X X	X X	— —
3321117	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel	2002.. N 1997.. N	X X	X X	454 860 505 124
33211171	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel	2002.. N 1997.. N	X X	X X	454 860 504 974
3321117101	Carbon and alloy steel open die and smith forgings (hammer and press), excluding stainless and hi-temperature, made from purchased iron and steel ³	2002.. N 1997.. N	X X	X X	338 140 313 867
3321117106	Stainless steel and hi-temperature (iron, nickel, or cobalt-base alloy) open die and smith forgings (hammer and press), made from purchased iron and steel ⁴	2002.. N 1997.. N	X X	X X	116 720 191 107
3321117Y	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel, nsk	2002.. N 1997.. N	X X	X X	— 150
3321117YVV	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel, nsk	2002.. N 1997.. N	X X	X X	— 150
332111W	Iron and steel forging, nsk, total	2002.. N 1997.. N	X X	X X	240 194 180 413
332111WY	Iron and steel forging, nsk, total	2002.. N 1997.. N	X X	X X	240 194 180 413
332111WYWW	Iron and steel forging, nsk, for nonadministrative-record establishments	2002.. N 1997.. N	X X	X X	89 348 76 179

See footnotes at end of table.

Table 6a. Products Statistics: 2002 and 1997—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
332111	Iron and steel forging—Con.				
332111W	Iron and steel forging, nsk, total—Con.				
332111WY	Iron and steel forging, nsk, total—Con.				
332111WYWY	Iron and steel forging, nsk, for administrative-record establishments				
	2002..	N	X	X	150 846
	1997..	N	X	X	104 234

¹This product code is primary to more than one industry. See industry 331111, product code 331111H101.

²This product code is primary to more than one industry. See industry 331111, product code 331111H203.

³This product code is primary to more than one industry. See industry 331111, product code 331111J101.

⁴This product code is primary to more than one industry. See industry 331111, product code 331111J203.

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p—10 to 19 percent estimated; q—20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6b. Product Class Shipments for Selected States: 2002 and 1997

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3321111	Hot impression die impact, press, and upset steel forgings	
	United States	2002 .. 2 448 219
		1997 .. 3 152 952
	California	2002 .. 79 565
		1997 .. 85 655
	Colorado	2002 .. 38 812
		1997 .. 48 427
	Illinois	2002 .. 275 007
		1997 .. 262 460
	Kentucky	2002 .. 132 197
		1997 .. 132 032
	Michigan	2002 .. 396 186
		1997 .. 406 074
	Missouri	2002 .. 15 018
		1997 .. N
	North Carolina	2002 .. 89 192
		1997 .. N
	Ohio	2002 .. 424 066
		1997 .. 531 618
	Pennsylvania	2002 .. 111 366
		1997 .. 250 874
	South Carolina	2002 .. 27 482
		1997 .. N
	Tennessee	2002 .. 104 877
		1997 .. N
	Texas	2002 .. 179 191
		1997 .. 439 747
	Wisconsin	2002 .. 193 463
		1997 .. 264 200
3321113	Cold impression die impact, press, and upset steel forgings	
	United States	2002 .. 422 452
		1997 .. 354 695
	Illinois	2002 .. 37 282
		1997 .. N
	Michigan	2002 .. 33 873
3321115	Seamless rolled ring forgings, ferrous, made from purchased iron and steel	
	United States	2002 .. 297 526
		1997 .. 342 342
	California	2002 .. 67 144
		1997 .. 141 197
3321117	Open die and smith forgings (hammer and press), ferrous, made from purchased iron and steel	
	United States	2002 .. 454 860
		1997 .. 505 124
	California	2002 .. 54 491
		1997 .. 112 750
	Illinois	2002 .. 55 291
		1997 .. 38 097
	Ohio	2002 .. 25 952
		1997 .. 35 273
	Pennsylvania	2002 .. 194 557
		1997 .. 150 504
	Texas	2002 .. 83 737
		1997 .. 77 742

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

Table 7. Materials Consumed by Kind: 2002 and 1997

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
332111	Iron and steel forging		
00900001	Total materials .....2002..	X	1 833 705
	.....1997..	X	2 062 087
33200057	Fabricated metal products (excluding forgings) .....2002..	X	31 227
	.....1997..	X	N
33210001	Forgings .....1,000 s tons..2002..	S	130 713
	.....1997..	P175.8	342 212
33120005	Steel ingot and semifinished shapes (blooms, billets, and slabs) (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	q250.0	159 218
	.....1997..	273.4	187 190
33120065	Steel bars, bar shapes, and other shapes and forms (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	q1 347.9	776 083
	.....1997..	1 196.8	721 156
33149101	Titanium and titanium-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	3.7	64 830
	.....1997..	3.0	79 706
33100074	All other nonferrous shapes and forms (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	D	D
	.....1997..	D	D
33100039	Aluminum and aluminum-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	D	D
	.....1997..	8.4	24 788
33149103	Nickel and nickel-base alloy, including nickel-copper alloys (excluding castings, forgings, and fabricated metal products) .....1,000 s tons..2002..	q8.5	84 108
	.....1997..	41.3	112 308
33351400	Forging dies .....1,000 s tons..2002..	S	37 349
	.....1997..	S	54 168
00970099	All other materials and components, parts, containers, and supplies .....2002..	X	181 414
	.....1997..	X	D
00971000	Materials, ingredients, containers, and supplies, nsk .....2002..	X	354 688
	.....1997..	X	292 800

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.